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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,243	05/04/2006	Masaharu Suzuki	350292002900	1660

25227 7590 12/10/2007
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EXAMINER

CADUGAN, ERICA E

ART UNIT	PAPER NUMBER
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3722

MAIL DATE	DELIVERY MODE
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12/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,243

Applicant(s)

SUZUKI, MASA HARU

Examiner

Erica E. Cadugan

Art Unit

3722

- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/4/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Comment

1. In claim 1, Examiner suggests inserting --deep-- prior to “hole” in line 3, and changing “a deep hole” in line 10 to --the deep hole-- for providing further clarity.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 3, the phrase “such as” (claim 1, line 2, claim 3, line 2) renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

There are several positively recited limitations that lack sufficient antecedent bases in the claims. A few examples of this are: “the tool formed with a through hole extending in an axial direction” as set forth in claim 1, lines 5-7 (note that no tool having a “through hole extending in an axial direction” was previously set forth in the claim); . This is not meant to be an all-inclusive list of such occurrences. Applicant is required to review the claims and correct any other such occurrences of limitations lacking sufficient antecedent basis.

There is no axis or frame of reference in the claims for determining what is meant by “axial” in claim 1, line 6 or claim 3, line 3.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2002-137145 (hereinafter '145).

Firstly, re apparatus claim 3, it is noted that it is not necessary for the reference to teach that the cutting tool machines a hole "having a depth not less than 50 times a diameter of the tool", since this is an intended use of the claimed machining apparatus. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In the instant case, the tool taught by '145 is considered to be capable of machining whatever size or depth of hole is desired, noting that the described tool is a cutting tool, and the cutting tool is blind as to the nature of the workpiece which it cuts, i.e., the cutting edges will cut whatever workpiece they come in contact with and to whatever depth they are directed to cut.

Re apparatus claim 3, '145 teaches a machining apparatus including a "tool holder" 10 for holding a cutting tool at the left end thereof (left is with respect to Figure 1, see also paragraph 0009 in the cited machine translation of '145, for example). The tool holder includes a "tank" 20 for storing a machining liquid in space 22 therein. '145 additionally teaches that the tool holder 10 is mounted (at tapered portion 14) to a spindle or main shaft of a machining center (paragraphs 0009 and 0010 of the machine translation, also Figure 1), and that a (not shown)

conveyance air supply passage or “gas supply conduit” is provided in that spindle or main shaft, which connects to conveyance air inlet port 18 in the tool holder 10 (Figure 1, paragraphs 0009, 0010 of the machine translation). Furthermore, it is noted that ‘145 explicitly teaches that compressed air is supplied through the conveyance air supply passage of the main shaft or spindle to the conveyance air inlet part 18, and thus, the structure that is used to pressurize or “compress” the air is considered to be a “gas pressure boosting means” (see at least paragraph 0013 of the machine translation).

Additionally, re the “atomization means for atomizing the machining liquid stored in the tank by the action of a pressurized gas thereby to supply the atomized machining liquid to the through hole of the tool”, it is noted that in the structure taught by ‘145, in the tool holder 10, compressed air is supplied as described previously to conveyance air inlet part 18, and then through conveyance air introduction passage 26 to discharge jet part 30 (part 30 is shown in detail in Figure 2, see also Figure 1). As mentioned previously, cutting fluid is stored in the space 22 in tank 20 (see Figure 1 and paragraph 0011 of the machine translation, for example). Then air is supplied through parts 18 and 26 to 30, the air supplied to 30 is breathed out to accessway 32 (Figure 1), passing through an opening 30d converging sections (see Figure 2) in the process. Since the area of the passage is decreased at 30d, the pressure is reduced, thus attracting cutting fluid from tank 20 through the cutting introduction passage 28 to the cutting fluid introduction passage 30e of discharge-jet part 30. The decreased pressure of the interior space 22 is compensated with the air attracted from air hole 22a. Thus, the cutting fluid supplied to 30d of the converging sections is atomized by the shear force of the air, and mist-like or atomized cutting fluid is ejected through the exit passage 34. See paragraph 0013 of the machine

translation for a detailed description of the operation of the described atomization structure, shown in Figures 1 and 2.

Additionally, since the tool held by the tool holder 10 is held at the left end (left is with respect to Figure 1) of the tool holder at 16, it is noted that the mist would inherently have to be supplied or ejected via a through hole or opening of the tool as there is no separate nozzle or passageway leading anywhere other than to the tool holding area of the tool holder 10 to eject the mist. Specifically re claims 1 and 3, it is noted such a hole or opening would inherently have to have a dimension of some sort, i.e., having at least a component extending in that direction, in the "axial" (O as viewed in Figure 1) direction, or else the mist wouldn't be able to be ejected. See also paragraph 0014 of the machine translation.

However, re independent claim 3, '145 is silent as to the pressure at which the compressed air is supplied, and thus does not explicitly teach that the gas pressure boosting means supplies the compressed air at a pressure of "1.5 to 5 MPa".

Additionally, re independent claim 1, while '145 does generically teach that the tool in question is a cutting tool that is rotated by a main shaft of a machining center, '145 does not explicitly teach that the tool is used to perform a method step of machining, in a workpiece, a "hole having a depth not less than 50 times a diameter of the tool". Also re independent claim 1, as mentioned re claim 3, '145 is silent as to the pressure at which the pressurized gas is supplied, and thus does not explicitly teach the method step of supplying the pressured gas "at 1.5 to 5 MPa".

However, firstly, Examiner takes Official Notice that the use of cutting tools that are rotated by a main shaft of a machining center to machine, generically, a "hole" or "holes" (even

to machine holes as the tools are supplied with a mist) in a workpiece is well-known in the art, for example, when it is desired to provide a hole in a workpiece.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the machining apparatus taught by '145 to have machined a "hole" in a workpiece as such is a well-known and widely understood use for machining apparatuses that rotatably drive cutting tools.

Additionally, particularly re claim 1, and particularly since '145 is silent as to any particular depth of cut, or particularly to any depth of cut as such would relate to the diameter of the cutting tool, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the cutting tool taught by '145 to machine a hole of whatever depth or range of depths was desired or expedient, including one in the claimed range of "not less than 50 times a diameter of the tool", particularly since it has been held that (and particularly absent a successful showing of secondary considerations or the like, which have not been proven in the instant case for that range) where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Similarly, with regards to both independent claims 1 and 3, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the pressurized gas taught by '145 at whatever pressure or range of pressures as was desired or expedient, including a pressure in the claimed range of "1.5 to 5 MPa", particularly since it has been held that (and particularly absent a successful showing of secondary considerations or the like, which have not been proven in the instant case for that range) where the general conditions

of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

As a side note, it is noted that the specification, on page 2, asserts that the applied reference asserts that there are problems with chip clogging when using the machining apparatus taught by '145 to machine a hole having a depth that isn't less than 50 times the diameter of the tool, and further asserts that if machining liquid under high pressure is applied into the through hole of the small-diameter tool, "large conduit resistance would cause a pressure drop and would make satisfactory deep-hole machining impossible". However, at this point in the prosecution, these statements have not been factually supported and appear to be speculative in nature. Note that such arguments cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). See also MPEP section 716.01(c), for example.

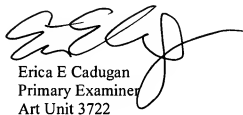
Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E. Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 6:30 a.m. to 4:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Monica S. Carter can be reached on (571) 272-4475. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Erica E Cadugan
Primary Examiner
Art Unit 3722